DEATH VALLEY BIGHORNS

by Walt Wheelock

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by WALT WHEELOCK

Keepsake No. 31

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DEATH VALLEY '49ERS

In the winter of 1849, several misguided parties seeking a shortcut to the Gold Fields, unfortunately chose a route through Death Valley. Running out of supplies and unable to choose a correct exit, they encamped near Tule Springs. Two young men, William Lewis Manly and John Rogers were able to reach the Spanish settlements, return with food and lead them to safety.

A hundred years later, a Centennial was held in Death Valley, and the responses were definitely overwhelming. As a result, it was decided to repeat this annually. This is the 42nd Encampment.

Death Valley '49ers dues support our organization in providing this program. In addition to Fiddler's Contests, Gold Panning, Art Shows, lectures and tours, these funds have contributed assistance to other National Park Service projects.

For more than a dozen years, the Death Valley '49ers have provided scholarship assistance to qualified students attending the local high school. Seven have already received degrees in fields as diverse as Nursing and Engineering. Each year, an additional student enters into this program.

ACKNOWLEDGEMENTS

Of the many books written on this copy, the most helpful were *Rock Drawings of the Coso Range*, Campbell Grant, ed.; *The Desert Bighorn*, Gale Monson and Lowell Sumner, ed.; and *The Bighorn of Death Valley*, by Ralph and Florence Welles, long time researchers in the Valley.

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THE BIGHORN

Unquestionably, the most handsome specimen of all of the North American wildlife is the Bighorn ram. To watch a ram, his ewe and the lambs leisurely stroll across an almost sheer cliff will bring any visitor to a halt to admire the sight, hopefully obtaining good photographs.

Most of the time, bighorn live in isolated portions of rugged mountains of Death Valley National Monument, so to observe such a treat will provide you with subject matter for tales of the park.

In the fall of 1907, a game hunter in Mexico was caught in a sudden thunderstorm. He wrote this impression of his sighting:

> The setting sun broke through the clouds . . . The leader was standing almost broadside to me, his massive head accentuated by the deer-like leanness of his neck and body. The shining sun and rain had formed a rainbow behind the pinnacle where the ram stood . . . What a wonderful picture it would have made, with that magnificent ram standing like a statue on a pedestal of bronze lava, with his head of massive horns.

Just where did these magnificent rams come from? Perhaps you would like some information about the species and their habitat?

The ancestral point of origin is believed to be in the mountains and deserts of Eurasia, perhaps in that vast region bordered by the Caucasus Mountains, the highlands of Tibet and the deserts off Mongolia. From this original pool also came the forefathers of domestic sheep.

During the last Ice Age, vast quantities of water were tied up in the ice and snow of glaciers, which lowered the level of the sea to a point when there was either a "land bridge" across the Bering Strait between Asia and the Americans, or a flat ice sheet was formed that could be crossed.

Between the Ice Ages, other immigrants probably included mammoths and antelopes. The sheep crossed relatively later, and the ancestors of the Eskimos and the Indians, perhaps a thousand years later.

The first recorded sighting was that of Coronado, who in 1540 wrote: "some sheep as big as a Horse, with very large horns and little tails." From then on, every reporter that traveled from bighorn country wrote comments, although Father Venegas, writing from Baja California, included a sketch in his history, which he labeled "California Deer."

The Lewis and Clark expedition of 1804-06 noted bighorns on the Cheyenne River. From then on a steady string of reports appeared. Various expeditions used many different names for the species. Finally in 1940 and 1960 names were officially adopted identifying two species: Thinhorns (*ovis dali*) and Bighorns (*ovis canadensis*) and ten subspecies, four of which are native to Mexico.

The one with which we are concerned is one of the subspecies *ovis canadensis nelsoni*. In 1890, a new employee of the Bureau of Biological Survey, Edward Nelson, was sent into Death Valley to make the first field survey. They obtained a "type specimen" from a local herd, just south of Grapevine Peak, which was later given Nelson's name.

In 1892, together with Edward Goldman, Nelson started work in Mexico. This climaxed in a report of an expedition which traversed the length of Baja California, during 1905-06. At the same time a popular writer, Arthur W. North, with his campboy, Jesus Guerrero, was making a parallel trip, and their paths crossed several times. For many years the Baja Bighorn also was called "Nelson," but is now referred to as "Peninsular." Nelson served as Chief of the Bureau from 1916 to 1927.

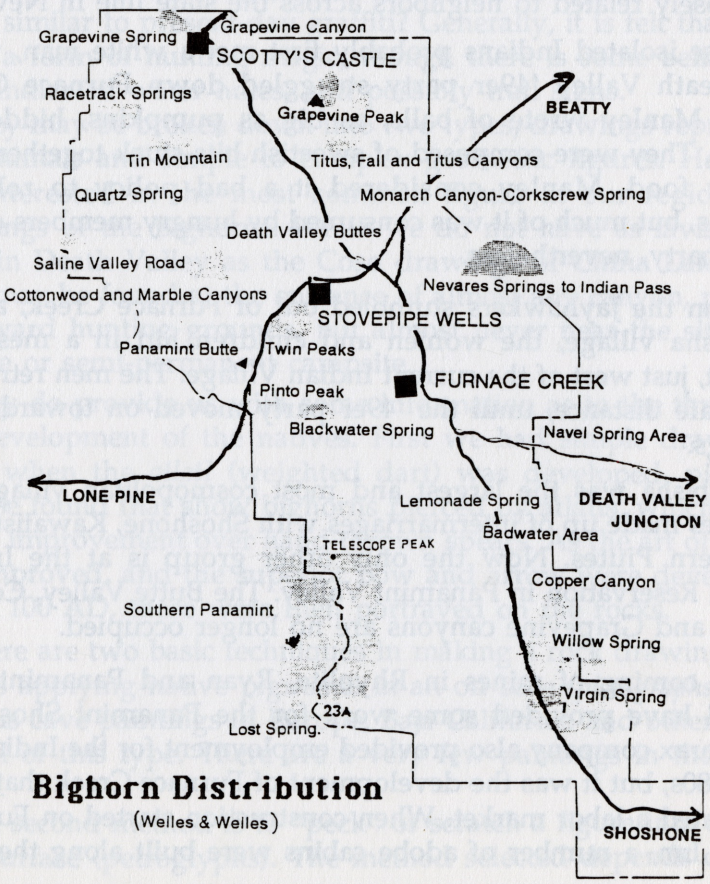
Desert Bighorn are short-legged and bulky. An adult ram is from 30 to 39 inches at the shoulders, and weighs about 160 pounds. Ewes are usually a little shorter and average about 105 pounds. Their pelt changes to dark grayish brown in the summer and appears to fade as the coat thickens in the winter. Ewes are generally lighter.

Lambs can walk at birth, and on occasion, are able to eat solid food within a week.

Generally, rams will be considered mature at 3.5 years and ewes at 2.5 years. Rams begin "clashes" at about three years, and become successful at 3.5 years. Their life span runs from two to sixteen years. Diseases, accidents and predators are the primary causes of death. The number of deaths depends a lot on the supply of food and water. We shall discuss this in more detail in the chapter on Death Valley Bighorns.

Trophy hunting for the largest possible rack of horns was once a definite mortality factor. At the present time however, law enforcement has slowed this down. In Mexico, the enforcement has been more rigorous, as it is not necessary to inform a culprit that violation of law is a crime.

It is interesting that the two largest sets of horns were from bighorns taken in Baja California, and seven of the ten largest trophies are listed from there. California comes in with a 26th-place head. This was of interest to me. For some eleven years I had a cabin at La Salina, Baja California. My landlord was Jesus Guerrero. As mentioned above, he had served as a campboy at the age of sixteen for North on his trip to La Paz, where they had met Nelson occasionally. Later, he became a very successful hunting guide. Jesus had taken a very large head in the El Matomi range, south of Ensenada. He held the world record for a bighorn at that time.



Bighorn Distribution

(Welles & Welles)

INDIANS & PETROGLYPHS

Scholars of prehistory time in Death Valley, divide the Native American occupation into four periods: DV-I 6000 BC to 3000 BC, DV-II 3000 BC to 1 BC, DV-III 900 AD to 1100 AD, and DV-IV from 1000 AD to the present time.

The Shoshonean people populated the largest area of the west, though they were not the most numerous. The lands included some of California and most of western Nevada. They were isolated from most California Indians by the Sierra Nevada. We here are interested in two small groups, the Coso and Panamint Shoshone (the latter have been known as the Timbisha since 1982). Although located along an eastern strip of California, they are closely related to neighbors across the state line in Nevada.

These isolated Indians probably first met a white man, when the Death Valley '49er party struggled down Furnace Creek wash. Manley wrote of balls, as big as pumpkins, hidden in niches. They were composed of sweetish bits stuck together, evidently food. Manley considered it a bad policy to rob the Indians, but much of it was consumed by hungry members of the '49er party, nevertheless.

When the Jayhawkers stumbled out of Furnace Creek, at the Timbisha village, the women and children hid in a mesquite thicket, just west of the current Indian Village. The men retreated to a safe distance, until the '49er party moved on toward Tule Springs.

Timbisha was the largest and most cosmopolitan village, its families made up of intermarriages with Shoshone, Kawaiisu and Southern Piutes. Now the only other group is at the Indian Ranch Reservation in Panamint Valley. The Butte Valley, Cottonwood and Grapevine canyons are no longer occupied.

The coming of mines in Rhyolite, Ryan and Panamint City would have provided some work for the Panamint Shoshone. The borax company also provided employment for the Indians in the 1880s, but it was the development of Furnace Creek that really created a labor market. When construction started on Furnace Creek Inn, a number of adobe cabins were built along the road

for laborers. At the same time several adobe homes were built in the Indian village, some of which still stand.

Since then both Fred Harvey, Inc., and the National Park Service provide employment for the Timbisha. For example, Angie Boland, tribe spokesperson, is also a "heavy equipment operator" for the Park Service.

For some time there was quite a conflict as to the status of the tribe, the Bureau of Indian Affairs refusing to provide a reservation, or consider them to be a "tribe." Then on October 6, 1982, an act of Congress granted them the status of a Native American Tribal Government, and on January 28, 1986, the members passed the Constitution and Bylaws and chose the name of Timbisha. Thus the tribe is now governed.

The old ones believed to be ancestors of the present tribes have left some signs of their past, the Rock Drawings (*petroglyphs*). These inscriptions of rocks have puzzled scholars for years. Were they to present a message, to be a prayer to the gods, or perhaps to be similar to present-day graffiti? Generally, it is felt that they were a form of hunting magic, though there is some belief that they indicated water holes, and possibly trail signs.

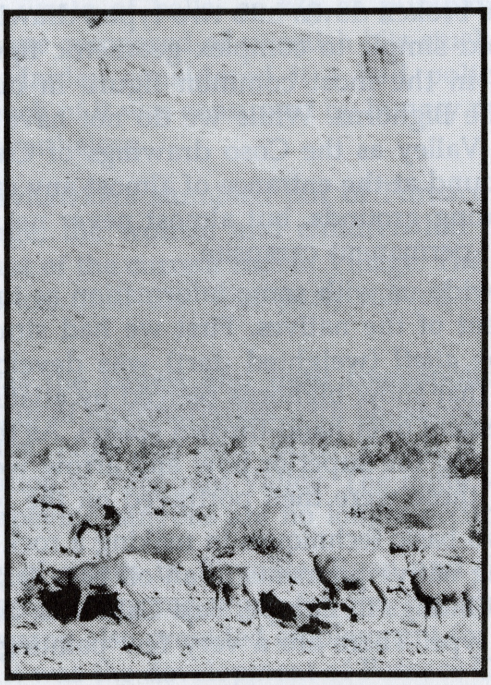
They may be broken down into two types, drawings representing animals and simple to complex geometric figures. Here we are interested in the most common figure in our region, the drawings of the Bighorns. While we do not have as lavish display in Death Valley as the Coso drawings of China Lake, still they may be found at the entrance of almost any canyon, possibly toward hunting grounds, but almost never near the site of a village or semi-permanent campsite.

They do provide us with some information as to the time and the development of the natives. First we had simple drawings. Then when the *atlatl* (weighted dart) was developed, pictures may be found that show bighorns pierced by atlatls, which were a vast improvement over hand-thrown spears. As the art of hunting improved, and the superior bow and arrow were developed about 100 AD, these were then portrayed on the rocks.

There are two basic techniques in making a rock drawing. The first is applying native pigments in an oil base (*pictographs*). The famous cave paintings in Europe, Baja California and other areas are all of this type. There are a very few paintings in the Coso range.

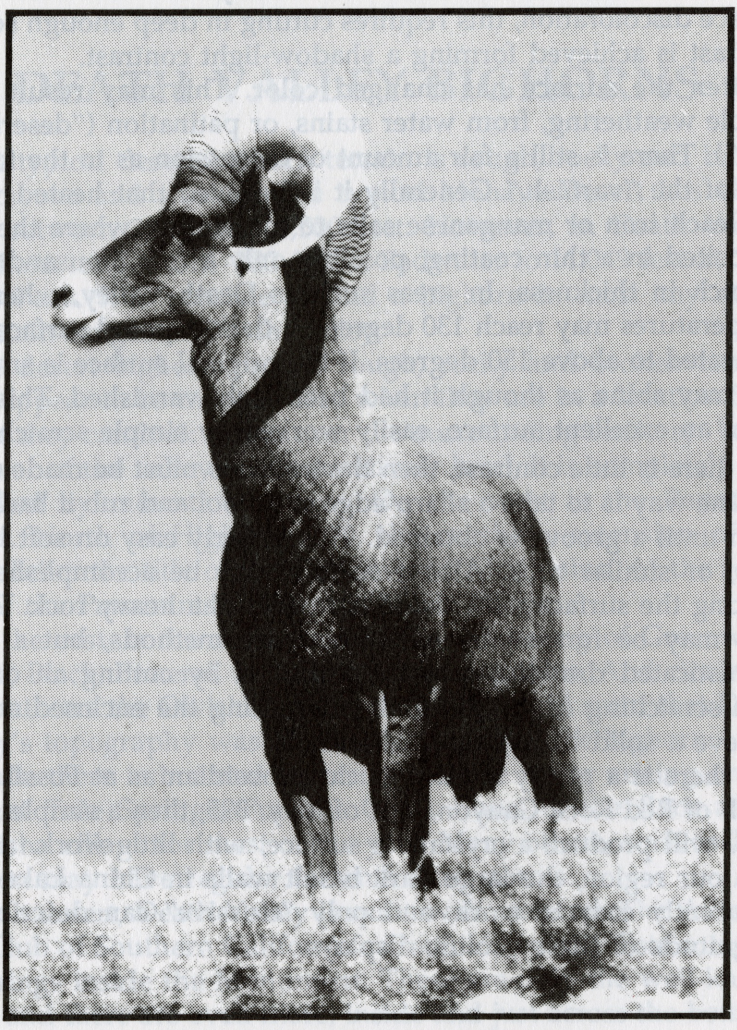
The second method is to "peck" or scratch a figure into a suitable surface (petroglyphs). The method selected depends on the

Binoculars are a help in searching for bighorn sheep.



Browsing in a desert dry wash.

Photographs c
U.S. National



A majestic bighorn – always on the alert.

courtesy of the
l Park Service.

color or surface texture. If the rock is fairly fresh and there is no surface discoloration, this requires cutting in deep enough so that contrast is achieved forming a shadow-light contrast.

Often the surface has changed color. This may result from simple weathering, from water stains, or patination ("desert varnish"). There is still a fair amount of discussion as to the formation of the "varnish." Generally it is believed that heated water can leach iron or manganese salts to the surface where they are deposited in a thin coating, possibly only a few thousandths of an inch in thickness. In areas such as Death Valley, where air temperatures may reach 130 degrees, a dark exposed surface may be heated to above 150 degrees. If the original surface is smooth, this may shine as though it had been truly varnished. This provides an excellent surface, easily worked by simple scratching.

If there is little contrast, then the incisions must be made deeper. One way is to take a sharp edge rock tool and rub it back and forth until a groove is obtained. This is fairly easy on soft limestone, or similar rock. Also a surface may be accomplished by striking the surface with the sharp point of a heavy rock. Drawings may be formed by either of these methods, but a more sophisticated drawing may be produced by cutting an outline with scratching or grooving, then abrading the enclosed area to achieve a solid background texture.

If there is a glassy surface, such as obsidian as at Fossil Falls, north of Red Rock Canyon, east of hwy. 395, then a simple sharp blow will produce a crystalline surface, with little work.

In our region, the large dark basalt walls in China Lake were apparently easy to work, and only "massive" can describe the magnitude of these prolific displays.

DEATH VALLEY BIGHORNS

The typical desert bighorn terrain is rough, rocky and broken by canyons and washes. The typical Mohave Desert has elevations between 2,000 and 6,500 feet. However, in Death Valley, elevations range from -282 feet at Badwater to 11,049 feet at Telescope Peak. It is possible to find a bighorn in most any of the mountain ranges in Death Valley.

The desert bighorn prefers rough, rocky and broken terrain. They appear to be more at ease when they are in a location from which they can look down over the surrounding territory. While the floor of the valley is comparatively level, it is completely surrounded by mountain ranges. On the west is the Panamint Range. North of Highway 190, the northern extension of the range bears the title of the Cottonwood Mountains. At the south end of the Panamints is the small Slate Range.

To the east, is the Amargosa Range, consisting of Greenwater Range, Black, Funeral, and Grapevine mountains. And closing to the south are the Owlshead Mountains. It would seem that Death Valley's topography was almost designed for the bighorn.

While there is but one source of potable water arising on the floor at Tule Springs, Furnace Creek flows to the floor at the Timbisha village for most of the year. Many others, such as Titus Canyon may have regular torrents after storms.

For a desert, Death Valley is quite well watered. The Automobile Club of Southern California's *Death Valley Map* lists some fifty springs inside the Monument. These are only the well-known ones, and there are even more, inside and just across the boundaries. In fact there are some 300 springs within the area. Ordinarily, bighorns permanently occupy a habitat within a few miles of a spring.

Bighorns can go for quite long times between drinking. In the summer, with hot weather, if water is available they may drink daily. An interval of one to three days would be nearer to the average. With cold winter weather, and possibly moisture on plant life, the interval may even be extended to an amazing period of 10 to 14 days or even longer.

Death Valley has been very fortunate in having a most extensive and detailed investigative study made of bighorns in a rela-

tively small isolated area. Under the direction of Principal Biologist Lowell Sumner of the NPS, Park Naturalist Ralph Welles and his wife Florence, undertook an intensive fieldwork program, starting on December 18, 1954. By March 1, 1961, 1693 hours had been devoted to this study, which resulted in the NPS publication *The Bighorns of Death Valley.*

Welles tells of a poor, shaggy ewe and her lambs walking slowly up to Neveres Spring. They drank for a full five minutes, and shortly thereafter returned for additional water. He reported: "Then all three of them stood filling out like a dried prune fills out when coming in contact with water."

Sheep as a class feed upon grasses, browse (twigs of bushes) and forbs (herbs and flowering plants). Bighorns may not follow this trend, as they are opportunists, feeding on what is available, and what appeals to their appetite. The seasons may also dictate their choice. Spring rains and summer showers can quickly bring succulent new growth as well as beautiful flowers.

Death Valley, with an elevation range that extends from below sea level to alpine climes at 11,000+ feet, provides a wide variety of forage. Welles concluded that "present evidence indicates a preponderance of shrub utilization in the diet." This probably is due to the scarcity of grass in quantity in the desert ranges and the almost complete lack of it on the floor of the valley.

Of the plants providing browse, a July survey in the Cottonwoods showed usage of littleleaf mahogany, winterfat, low sagebrush, snowberry and desert peach.

The reproduction cycle starts with the rutting period, which usually begins in midsummer and may run as late as early December. The ram head butting contests and other activities to secure a dominant position in the herd are well known. The ewe will only accept a ram during her "period." However if she has not been bred, intervals between "heats" will shorten.

The gestation period is approximately 170 days, and the rather large eight pound lamb enters the world, usually in late winter or early spring. The mouse-colored lamb stands about 17 inches high.

The lambs are weaned at six months and are only allowed to nurse for a few seconds at a time. When young, this is satisfactory, but as the lamb grows, it depends less on its mother's milk, and more on solid food, so weaning is a gradual and easy process.

There is a certain amount of controversy as to when a bighorn

matures. There is evidence that a ram is sexually mature as early as six months, but secondary sexual characteristics continue to develop until a ram is ten years old. However, a ewe is able to produce her first lamb at approximately 2.5 years. A ram will engage in horn "clashes" before he is four years old, but it will be another year before achieving much success in the bouts with his older, larger and more experienced rivals.

What is the average age span of a bighorn? Most of the skulls collected in Death Valley have been less than a year old, or more than ten. It seems that if a lamb reaches one year, it has an excellent chance of reaching ten years. But it also appears as though a lamb has only a thirty percent chance of surviving that first year.

There is concern that our bighorn rams are becoming geographically isolated. Hence there is less and less opportunity to exchange genes outside of a herd that may only number a dozen or so. There are fears that this inbreeding may lead to a possible extinction of the smaller bighorn populations. An important part of the Welles study was the interaction between bighorns and humans. Much as been said about the curiosity of the bighorn and the Welles attempted to differentiate between idle curiousity and wariness. They concluded it varied with the individual and may be derived from what a bighorn considers to be a serious hazard.

When the Welles worked with a herd for a long period of time, old ewes or young lambs would even approach them when they were enjoying a lunch at a clearly visible location.

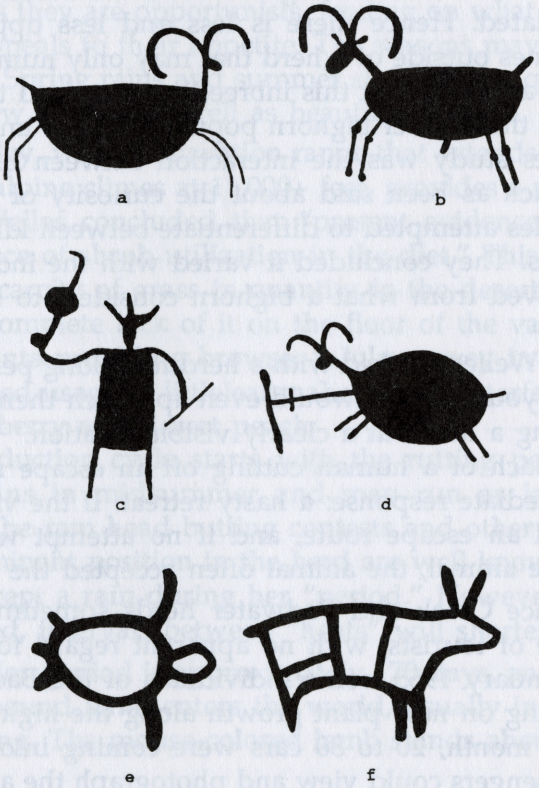
The approach of a human cutting off an escape route would call for immediate response: a hasty retreat. If the visitor's position blocked an escape route, and if no attempt was made to approach the animal, the animal often accepted the visit.

The Furnace Creek and Badwater herds sometimes accepted the presence of tourists, with no apparent regard for their own safety. In January 1955, some individuals of the Badwater herd started feeding on new plant growth along the highway. By the 12th of that month, 20 to 30 cars were coming into a wash, so that the passengers could view and photograph the animals. This even presented a traffic problem. Rangers attempted to scare the bighorns away by shouting, running toward them, blowing horns and even firing guns. Bighorns would only move a hundred yards away, then stare back, being as curious as the tourists.

The Furnace Creek herd is sometimes seen back in the hills,

and seems to have regained its natural weariness. Cars on the back roads do not seem to bother them as long as they can find escape routes away from the cars. In fact they often stop and watch a string of OHVs (Off Highway Vehicles) on a conducted tour into the inner recesses of the Monument.

The greatest problem is when humans want to picnic or camp near a spring or waterhole. They will not approach and definitely show signs of anxiety and stress. Keep this in mind while exploring the backcountry of the Monument.



a, b, Coso figures
c, hunter with atlatl, d, with bow and arrow
a, f, Baja California figures
a, b, c, d after Grant, e, f after Meighan

BIGHORN'S FUTURE

There is no doubt that our Desert Bighorn is a most attractive animal and is universally admired. But are we sure as to its future? Do we know what problems lie ahead and what and how to insure that they will always be here in Death Valley?

The Welles' work was in the Black and Funeral ranges bordering the Valley to the east. Additional work was done in the Panamint and Cottonwood ranges. Their work was not a one-time journey into possible bighorn sites, but resulted from repeated visits, some of which required camping not too far from water holes. They came to know, shall we say in a personal way, many of these sheep. In fact, they were almost on "first name basis" with such as: Old Mom, Broken Nose, Full Curl, Rambunctious and Tan Rump. There were actually 51 rams, ewes and lambs they could possibly identify on repeated sightings that took place over this study period.

The Welles could be checking up on a herd or group of bighorns in an evening and by morning find that they had split and all that would be left would be Old Mom, a yearling and a lamb. Most groups usually stayed within six miles of a water source, and many a sheep never travels as much as twenty miles from its birthplace.

We are also interested in how bighorns have reacted to increasing visitation to Death Valley. Observations by Hatch Graham include: "The legend that the desert bighorn is the epitome of wilderness probably came about because the bighorn inhabiting wild areas are seldom seen. The facts demonstrate that man walking alone in bighorn country often causes little Disturbance."

Welles said: "By nature the bighorn would appear to be unwary and trusting, but quickly acquires a wariness from an experience which makes it prefer isolation from human activities."

It has been said that the greatest danger to an adjustment to man comes from human water usage and occupancy. Since the establishment of Death Valley National Monument, human occupancy has been generally restricted to the Furnace Creek, Stovepipe Wells and Scotty's Castle areas. Once a fair amount of mining took place throughout the Valley. There are still inholdings at

Ryan (borax) and Warm Springs (talc), but neither is active at the present time. The only cattle grazing is on private lands at Hunter Mountain and in the Nevada Triangle areas.

The conflict with burros has held our attention for a long time. They are very destructive to the soil surface, and often the land around a spring may be completely roiled by burro tracks, and hence no sheep tracks will have been seen leading to the waterhole but may be visible a few feet away. There is positive evidence that springs have been completely obliterated by burro usage and there is no doubt that burros should be removed from the National Monument. The removal program has just about been completed by the Park Service.

We cannot be sure of the actual number of bighorns now living in the Monument. Since many live in very isolated areas and often shift from place to place at difference times of the year, there has been a tendency in the past to make estimates assuming that the true number probably is 200% of the number of actual sightings. From 1980 on, with more direct observations at waterholes, using time-lapse cameras at the springs and temporary marking of individual sheep have given more accurate data. In cooperation with the State Department of Fish and Game, aerial surveys have also been made, providing additional data.

From the table below, it *appears* that the population has declined. However different counting techniques have been used and the numbers are not strictly comparable.

Year	Population	Habitat Area	Source
pre 1950	4,800 (max)	1,409 sq. mi.	Hansen, 1972
1955	261	—	Welles & Welles, 1961
1961	915	—	Welles & Welles, 1961
1972	583	384 sq. mi.	Hansen 1972, Weaver 1970
1975	520	—	Annual Wildlife Report
1990	400	—	NPS/Fish & Game (est.)

At the present time, overnight camping in Death Valley is forbidden anywhere near water sources, except in established campgrounds. Prospecting, which once kept bighorns away from traditional watering holes is now illegal in the Monument. Riding animals must be provided with food, rather than grazing on sparse grasses.

In general, there seems to be adequate forage and water in the backcountry. And so it seems that the bighorns will be with us evermore!